[0097] As shown in **FIG. 14**, when taking the gun unit **10** as an example as the processing unit for performing processing in relation to the player (virtual viewpoint, or virtual player within the game space), the game processing unit **400** has a light-up processing unit **400**a for lighting the marker during the game; a muzzle direction detection unit **401** for detecting the position on the screen **121** to which the muzzle is facing based on the image captured with the CCD camera **6**; an I/O input unit **402** for inputting the on-state of the pump trigger switch **12** and trigger switch **11** and the detection status of the player detection sensors **51** to **54**; a bullet-loading processing unit **403** for processing the loading of a prescribed number of virtual bullets when the pump trigger switch **12** is turned on; a bullet position computation unit **404** for setting the coordinates so as to move the bullets in a direction according to the direction of the muzzle **16** from the vicinity of the virtual viewpoint within the game space when the trigger switch **11** is turned on; a viewpoint position shifting unit **405** for ordinarily shifting the virtual viewpoint within the game space (at a shifting width designated in advance) and shifting the virtual viewpoint so as to avoid the dinosaur when the player detection sensors **51** to **54** detect the movement of the player on the player area PE; and a collision judgment unit **406** for judging whether the virtual attack from the enemy hit the player.

[0098] Further, as the processing unit for performing processing relating to the enemy character, the game processing unit **400** has an enemy attack setting unit **407** for generating the attack to the player when the enemy character is sufficiently close to the player (using random numbers, etc.); an enemy movement processing unit **408** for moving the enemy character upon setting the enemy character coordinates so as to chase the player within the game space; and an enemy collision judgment unit **409** for judging whether the virtual attack from the player hit the enemy. The game processing unit **400** further has an image processing unit **410** for setting data which designates the drawing control unit **101** so as to draw based on the setting of the enemy character coordinates and rotating the stepping motor **41** in accordance with where to display the projected image of the projector **31** on the screen **121**, for example, whether to display the projected image on the upper part or lower part; and a sound processing unit **411** for setting data which designates the sound control unit **104** to selectively reproduce sounds (including music) according to the game progress.

[0099] With the game processing main body executed at the game processing unit **400** including each of the foregoing processing units, as shown in **FIG. 15**, light-up processing of the marker **13** is foremost conducted (ST**80**), the muzzle direction detection processing is then conducted with the muzzle direction detection unit **401** (ST**81**, described later in details with reference to **FIG. 18** and the like), and the response status of the pump trigger switch **12**, trigger switch **11** and player detection sensors **51** to **54** is obtained with the I/O input unit **402** (ST**82**).

[0100] If the pump trigger switch **12** is responding (YES at ST**83**), the bullets are virtually loaded at the bullet-loading processing unit **403** (ST**84**). If the trigger switch **11** is responding (YES at ST**85**), the coordinates representing the trajectory of the bullets within the game space are computed (ST**86**) in accordance with the direction of the muzzle **16** with respect to the screed detected with the muzzle direction detection unit **401**.

[0101] If the response state of the player detection sensors **51** to **54** is of a prescribed pattern showing the movement of the player **300** on the play area PE (YES at ST**87**), the avoidance movement of the virtual viewpoint is set with the viewpoint position shifting unit **405** (ST**88**), and, if the response status of the player detection sensors **51** to **54** is not of a prescribed pattern (NO at ST**87**), the normal movement of the virtual viewpoint is set (ST**89**).

[0102] In further detail, the player detection sensors **51** to **54** are range sensors for detecting the distance to the obstacle with supersonic waves or infrared rays, and turning on the signal when the distance to the obstacles is less than a prescribed distance (distance corresponding to the player **300** on the play area PE) (it is not necessary to measure the distance accurately). As shown in **FIG. 16** and **FIG. 17**, when it is detected that 1P player shifted from the reference position in front of the player detection sensor **52** on the inner left side to the front of the player detection sensor **51** on the outer left side during an ordinary case, the virtual viewpoint coordinates are set within the game space deeming that the player has moved around to the left side of the dinosaur.

[0103] Particularly, here, since the movement to the left side is detected with a combination of two player detection sensors, as shown in **FIG. 17**, it is possible to detect "a state where nobody is playing" and "a state of erroneously recognizing the gallery other than the player" in addition to the movement itself, and it is possible to detect the movement of the player with further accuracy.

[0104] Further, regarding the 1P player's movement to the right side (**FIG. 16**), when it is detected that the player moved to the front of the player detection sensor **53** on the inner right side (or the player detection sensor **54** on the outer right side), the virtual viewpoint coordinates are set within the game space deeming that the player has moved around to the right side of the dinosaur.

[0105] Moreover, the reference position may be moved to the front of the player detection sensor **53** on the inner right side. Here, when it is detected that the player moved to the front of the player detection sensor **54** on the outer right side, the virtual viewpoint coordinates may be set within the game space deeming that the player has moved around to the right side of the dinosaur, and when it is detected that the player moved to the front of the player detection sensor **52** on the inner left side (or the player detection sensor **51** on the outer left side), the virtual viewpoint coordinates may be set within the game space deeming that the player has moved around to the left side of the dinosaur.

[0106] When the collision judgment unit **406** judges that the attack from the enemy character hit the player (YES at ST**90** of **FIG. 15**), the player's life is reduced, and the player's life gauge display (which represents the player's life value on the screen in a pole shape) is renewed (ST**91**).

[0107] When an attack from the enemy character to the player is generated in the enemy attack setting unit **407** (YES at ST**92**), coordinates within the game space of the respective portions are set (ST**93**) such that the attack against the player is generated from the portions which the enemy character generates attacks such as the mouth, arms, legs and tail. When the enemy character movement is set in the enemy movement processing unit **408** (YES at ST**94**),